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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/816,951

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Ivan A. Cowie

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EXAMINER

AHN, SAM K

ART UNIT

PAPER NUMBER

2611

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/816,951

Applicant(s)

COWIE ET AL.

Examiner

Sam K. Ahn

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on pre-admt, filed 07/26/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 37-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37-46 is/are rejected.
- 7) ☒ Claim(s) 47-56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "plurality of parallel data bits", as claimed in claim 37 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title of this application is in the field of a receiver, while most of the claims recite elements of a transmitter.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 37-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle et al. US 7,010,056 B1 (McCorkle) in view of Fullerton US 5,687,169.

Regarding claim 37, McCorkle teaches a method for transmitting in an impulse radio (see Fig.2), comprising: generating a plurality of pulses (output of 17 and note c.11, l.13), each of said plurality of pulses being modulated (note c.11, l.1-2) in accordance with a corresponding one of a plurality of parallel data bits (parallel bits, output from 1603 in Fig.16); and transmitting said plurality of pulses (transmitting the pulses via antenna 1,15).

However, McCorkle does not explicitly teach and a predefined pulse interleaving order.

Fullerton teaches a method for transmitting in an impulse radio comprising generating a plurality of pluses with a predefined pulse interleaving order (from 1902 in Fig.19 providing frequency control for acquisition and locking from the transmitter path 1734,1904,1914). Hence, both McCorkle and Fullerton teach an impulse radio transmitter, wherein Fullerton further suggests implementing generation of pulses with a predefined pulse interleaving order in order to avoid self-interference between transmitted and received impulse radio signals (note c.2, l.27-30). McCorkle also teaches transmitting and receiving pulses (see Fig.2). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Fullerton in the system of McCorkle of implementing generation of pulses with a predefined pulse interleaving order in order to avoid self-interference between transmitted and received impulse radio signals (note c.2, l.27-30).

Regarding claim 38, Fullerton further teaches wherein said predefined pulse interleaving order is defined by a pulse interleaving code (note c.14, l.41-50, wherein 1802 in Fig.18 aiding the implementation of interleaving is operated by burst controller 1802 through a EEPROMS, wherein such memory devices are well-known to read and write codes, thus codes from the EEPROMS are provided for the pulse interleaving).

Regarding claim 39, Fullerton further teaches wherein said pulse interleaving code is modified in accordance with a shift code (1902 providing codes to 1912 in Fig.19 for delaying pulses, hence delaying by shifting the pulses).

Regarding claim 40, McCorkle further teaches wherein each of said plurality of pulses is modulated in accordance with a predefined data bit order (modulation of pulses is in accordance with NRZ bit order, see Fig.16).

Regarding claim 41, McCorkle further teaches wherein said predefined data bit order is defined by a bit ordering code (defined by the NRZ, see Fig. 16).

Regarding claim 42, McCorkle further teaches wherein said predefined data bit order is a sequential order (NRZ odd bits and even bit, see Fig.16).

Regarding claim 43, McCorkle further teaches wherein each of said plurality of pulses is modulated by amplitude modulation (note c.11, l.1-2).

Regarding claim 44, McCorkle further teaches wherein said at least one of said plurality of pulses comprises a burst of cycles (see Fig.1b of bottom figure of a pulse having a cycle from time 0 to time 10, hence one skilled in the art would recognize that the plurality of pulses, as explained above have plurality of cycles).

Regarding claim 45, Fullerton further teaches wherein said predefined pulse interleaving order is a sequential order (in sequential order of the steps in Fig. 14, note c.11, l.15-28).

Regarding claim 46, McCorkle further teaches wherein said pulses are uniformly positioned in time (see bottom figure in Fig. 1b wherein each of the pulses have a uniformed position with peak with  $T_c$  at the center of the cycle at time 5).

***Allowable Subject Matter***

4. Claims 47-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter: present application discloses a method for transmitting pulses in an impulse radio of generating interleaved pulses, wherein prior art teaches all the limitations claimed. However, prior art does not explicitly teach the further limitation of the combined steps of integrating coherently detected signal, contributing the integrated detected signal to integration ramps according to the pulse interleaving order, and demodulating.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sam K. Ahn  
Patent Examiner

4/26/07